

CLAIMS

1. (Amended) An optical pickup device comprising:
a source of light (1);
5 a lens (10, 11) arranged on an optical path extending from said source of light (1) to a magneto-optical recording medium (12);
a beam splitter (2) arranged on an optical path extending from said source of light (1) to said lens (10, 11), to separate a portion of light reflected by said magneto-optical recording medium (12);
10 a photodetector (7, 27) detecting said reflected light separated by said beam splitter (2); and
a first diffraction element (6, 26) arranged on an optical path extending from said beam splitter (2) to said photodetector (7, 27), wherein:
said beam splitter (2) includes a first member (15) made of isotropic
15 optical material, reflecting light received from said source of light (1) and directing the light to arrive at said magneto-optical recording medium (12), and passing a reflection of light received from said magneto-optical recording medium (12), and a second member (14) adjacent to said first member (15), made of anisotropic optical material and further passing light
20 reflected from said magneto-optical recording medium (12) past said first member (15);
said first member (15) is a prism having a parallelogramic cross section and having first parallel planes (17, 18) opposite each other and second parallel planes (16, 19) opposite each other and each traversing said
25 first parallel plane (17, 18) at a predetermined angle, one of said first parallel planes (18) being arranged in contact with said second member (14), one of said second parallel planes (16) being arranged opposite said source of light (1), the other of said second parallel planes (19) being arranged opposite said lens (10, 11);
30 said predetermined angle is so selected that light output from said source of light (1) and incident on said one second parallel plane (16) at a predetermined angle of incidence, is reflected initially by said other first parallel plane (17) and then by said one first parallel plane (18) and emerges

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from said other second parallel plane (19);

said photodetector includes a set of photodetection portions (7c, 7d) corresponding to a portion thereof divided in two by a boundary parallel to a plane orthogonal to said first and second parallel planes (17, 18, 16, 19) of said beam splitter (2);

said first diffraction element (6, 26) is divided in two by a line parallel to a plane orthogonal to said first and second parallel planes (17, 18, 16, 19) of said beam splitter (2), to have first and second regions; and

light reflected by said magneto-optical recording medium (12) that is diffracted by said first region is directed to said boundary of said photodetection portions (7c, 7d).

2. The optical pickup device of claim 1, wherein said first member (15) has an index of refraction substantially equal to an extraordinary index of refraction of said second member (14).

3. The optical pickup device of claim 1, wherein said first member (15) has an index of refraction having a difference from an extraordinary index of refraction of the second member (14) of no more than one half a difference between an ordinary index of refraction and said extraordinary index of refraction of said second member (14).

4. (Cancelled)

5. (Amended) The optical pickup device of claim 1, wherein said second member (14) has a crystal axis selected to be orthogonal to light emerging from said other one of said second parallel planes (16, 19) and to form approximately 45° to a plane including a vector in a direction of the light emerging from said other one of said second parallel planes (16, 19) and a vector normal to said one of said first parallel planes (17, 18).

6. (Amended) The optical pickup device of claim 1, further comprising: an optically transparent substrate (4) arranged between said

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source of light (1) and said photodetector (7, 27), and said beam splitter (2); and provided with said first diffraction element (6, 26) thereon.

5 7. The optical pickup device of claim 6, further comprising a second diffraction element (5, 25) arranged in said optically transparent substrate (4) at a position to receive light output from said source of light (1), to divide the light received from said source of light (1) into at least three beams of light.

10 8. The optical pickup device of claim 7, wherein said first and second diffraction elements (6, 26, 5, 25) are juxtaposed on a single plane.

15 9. The optical pickup device of claim 1, further comprising a $\frac{1}{2}$ wave plate (3) arranged between said source of light (1) and said beam splitter (2).

20 10. The optical pickup device of claim 1, wherein said second member (14) has an index of refraction of 1.4 to 2.0.

25 11. The optical pickup device of claim 10, wherein said second member (14) is formed of lithium tetraborate.

12. (Added) The optical pickup device of claim 1, wherein outputs of said photodetection portions (7c, 7d) are compared with each other to obtain a focus error signal.